This invention relates to new and useful improvements in an expansion story-pole, combining a level, plumb and spacing device.

The main object of this invention is the construction of an expansion device for measuring height, leveling, plumbing and spacing the courses of brick, tile, stone or other materials used in the construction of walls, and especially adapted for masonry work and carpenter construction work.

With the foregoing and other objects in view, as will more fully appear as the description proceeds, it will be observed that my improved device consists of an expansion story-pole, designed for measuring height and space, constructed of any suitable material, aluminum preferred, as will hereinafter be more fully described, illustrated and claimed; but it is to be understood that several changes may be made in the proportions and construction of this device without departing from the spirit and intent thereof.

I attain these objects by means of the novel construction and mechanism illustrated in the accompanying drawings, in which:

- Figure 1 represents a plan view of my device in its drawn or open position.
- Figure 2 represents a plan view of said device, in its closed position.
- Figure 3 represents a side elevation.
- Figure 4 represents the lower end of the case.
- Figure 5 represents a short section side view of the upper end of the case.
- Figure 6 represents a cross section of the device on the line A—A.
- Figure 7 represents a cross section on line B—B.
- Figure 8 represents a cross section on the line C—C.
- Figure 9 represents a cross section on the line D—D.
- Figure 10 represents a cross section on the line E—E.
- Figure 11 represents a cross section on the line F—F.
- Figure 12 represents the end elevation of the story-pole rule on the line G—G, also the clamping means.
- Figure 13 represents the upper end view of the story-pole, on the line H—H.
- Figure 14 represents a cross section on the line I—I.

Figure 15 represents a plan view of the story-pole moved from the case.

Figure 16 represents a side elevation of said story-pole.

Figure 17 represents a plan view of the three-part clamping member.

Figure 18 represents a side elevation of said clamping member.

Figure 19 represents an elevation of the guide member.

Figure 20 represents a plan view of said guide member.

Figure 21 represents a plan view of the guide member.

Figure 22 represents a side elevation of the guide member.

Figure 23 represents a side view of pivot pin.

Figure 24 represents an end view of said pivot pin.

Figure 25 represents a plan view of two of the expansion spacer links, removed from the casing.

Figure 26 represents a side view of said spacer links.

Figures 6 to 12, inclusive, represent enlarged cross sections of the story-pole, spacer and casing.

Figures 15 and 16 represent enlarged views of the story pole spacing rule.

Referring to the drawings, similar numerals refer to similar parts, throughout the several views.

Numerals 1 designates the casing portion of the story-pole spacing device; numeral 2 designates an adjustable story-pole rule; numeral 2’ designates a longitudinal groove in the spacing rule; numeral 3 designates the lower flange end of the casing; numeral 4 a bolt which binds the lower flange to the casing, adapted to pivotally engage the lower ends of the two expansion links, 7; numeral 5 the longitudinal groove within the casing, adapted to engage the expansion spacing links in a sliding manner; 6 the upper longitudinal communicating groove within the casing, adapted to engage the story-pole rule, in a sliding manner; 7 expansion links, pivotally attached, by means of bolt 4, to the lower end of the casing, the upper end of said expansion links 7, adjustably attached to the story-pole rule; 7' numerous expansion links, forming a spacing connection between expansion links 7; 8 the numerous pivot pins, adapted to engage the
ends and center of the expansion links 7; 9
the upper end flange of the story-pole rule;
10 the carrier handle; 10' the filler, rigidly
attached to the carrier handle and the story-
pole rule, adapted to engage the groove 23°
in a sliding manner; 11 a pivot pin, adapted
to engage the expansion links 7 and the
guide member 12, as shown in Fig. 7; 11' a
reading gauge line, on the head of pivot pins,
11, also on pivot pins under the screw wheels
16, 18 and 19, (see Figs. 1 and 24); 13 a
vertical groove in the ends of guide member
12 (see Figs. 20 and 21); 14 and 15 the two-
part guide and clamping member adapted
to engage the casing groove in a sliding man-
ner (see Fig. 8); 16 an adjustable screw
wheel; 16' the threaded stem, extending from
the screw wheel 16, through pivot pin 11
adapted to engage the clamping members
26 and 27, as shown in Figures 1, 11, 16 and
18; 16'' a guide member on said stem
adapted to engage the casing groove 5, in a
sliding manner; 17 loop handles, rigidly
attached, crosswise, upon the casing surface;
18 screw wheels; 19' threaded stems, extend-
ing from the said screw wheels, through two
of the pins 11 adapted to engage the clamp-
ing members 14 and 15, as shown in Figs.
1 and 8; 19 a special loop handle on the
upper end of one of the pivot pins 11, as
shown in Fig. 10; 20 a plumbing, spirit level,
adjustably attached in a crosswise position,
to the casing, as shown in Figs. 3 and 9; 21 a
guard protecting said spirit level; 22 a level-
ing spirit level, adjustably attached within
a groove, on the side of the casing, as shown
in Figs. 1, 3 and 9; 29 a longitudinal groove
extending from the outer edge of the casing
to the inner groove 6 (see Fig. 3); 29' the
inner enlarged portion of groove 23 (see
Fig. 9); 24 a binding clamp, adapted to en-
gage the projecting flange 23°, in a sliding
manner (see Figs. 3, 8, 9 and 16); 25 a small
hand wheel (see Fig. 15); 25' a threaded
stem, extending from said hand wheel,
through the binding clamp 24, and engaging,
by thread means, the filler 10' of the car-
rier handle 10 and the story-pole; (see Figs.
1, 8, 15 and 16); 26 and 27 a three-part
clamping member, adapted to engage in a
sliding manner, the longitudinal groove 2° of
the story-pole rule (see Figs. 1, 11, 15 and
16); 28 dowel pins, adapted to engage in a
sliding manner, the clamping members 29
and 37 (see Figs. 17 and 18); 29 a washer on
the threaded clamping stem, 18° (see Fig.
8); 30 designates the graduated rule por-
tion of the story-pole case, divided into feet,
10 inches and fractions thereof (see Figs. 1 and
2); 31 designates the graduated rule por-
tion on the surface of the story-pole rule,
divided into feet, inches and fractions there-
of; 32 designates the graduated, ruled edge
of the story-pole rule (see Fig. 3).

It is to be understood that my combina-
tion story-pole may be made in various
lengths, as the trade may require; that the
scale graduation on the casing surface, be-
gins at the lower end of the casing and is
ruled upward to the end thereof. The same
graduation continues on the same line, upon
the surface of the story-pole rule, to the end
thereof, and may constitute a total length of
10 or 20 feet. The reading of said scale
begins with the reading gauge line 11', upon
the head of the lower pivot pin 11 (see Fig.
2). For reading purposes it will be ob-
served that the numerous pivot pins 11 are
all numbered on the surface of the head of
said pins, just above the reading gauge
line, beginning with the lower pin 11, desig-
nated as 1, the second pin as 2, the numer-
als increasing in like ratio to and including
the last pivot pin, connecting the expansion
links (see Figures 1 and 2). It will be ob-
served further that the graduations on the
edge of the story-pole rule begin at its up-
per end and are scaled downward. By
means of this scale graduation the distance
being measured is quickly and accurately
ascertained as to feet, inches and fractions
thereof (see Figures 1, 3, 15 and 16).

It will further be observed that, when not
in use, my story-pole device will usually be
in the closed position, as shown in Fig. 2,
representing a length equal to the casing;
that, when it becomes desirable to lengthen
said story-pole the user will loosen the screw
wheel 25, and, by means of handle 10, the
story-pole can readily be moved outward, its
full length, from within the casing, as
shown in Figures 1 and 3. It will also be
understood that by adjusting the expansion
spacing links, as connected with the reading
gauge line pins, the courses of brick, tile
or other material used in the construction of
walls, can be accurately measured and
spaced, as to the courses, and mortar joints.
This device is also adapted to accurately
level and plumb walls under construction.

To illustrate: When using my story-pole
combination, loosen the clamping wheel 16,
and extend the story-pole rule to its full
length; then tighten the clamping wheel 25,
which securely binds the rule to the casing.
If the wall space to be filled with brick
measures say, 7 feet 9½ inches, it may re-
quire 31 or 32 courses of brick, including
the usual mortar joints. In order to divide
said space into 31 equal courses, loosen and
move the expansion link spacing device up-
ward to the position where the reading
gauge line on pin No. 31 is directly in line
with the ruled graduation, indicating 7 feet
9½ inches; then beginning at the lower
reading gauge line on pin No. 1, said line
indicates the center of the first mortar joint:
reading gauge line on pin No. 2, would indi-
cate the center of the second mortar joint,
and so on, upward, to and including pin No.
2. 5

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which would be the last course of brick required to fill said space

Having fully described my improved story-pole device, what I claim as new and desire to secure by Letters Patent is:—

1. A story-pole combination of the character described, comprising a casing provided with longitudinal, communicating grooves, spaced apart within said casing; a grooved story-pole rule, adapted to engage the upper groove of said casing in a sliding manner; numerous expansion spacing links and pins pivotally attached to each other and adapted to engage the lower casing groove in a sliding manner, the lower end of said spacing links being pivotally attached to the lower end of said casing, the upper end of said spacing links being adjustably attached within the groove of the story-pole rule, and means for adjusting and clamping the said expansion links and story-pole rule in their desired relation to each other, within said casing, as shown and described.

2. A story-pole combination of the character described consisting of a casing provided with two longitudinal communicating grooves spaced apart within said casing; a grooved story-pole rule adapted to engage the upper casing groove in a sliding manner; numerous expansion spacing links and pins pivotally attached to each other and adapted to engage the lower casing grooves in a sliding manner; numerous spacing pins spaced equally apart and pivotally engaging the expansion links, and provided with reading gauge lines on the lower arc of the spacing pin heads, and spacing numerals upon the surface of the spacing pin heads adjacent to the reading gauge line, as described and for the purposes set forth.

3. The combination within a casing, provided with longitudinal communicating grooves; an adjustable, grooved story-pole rule, adapted to engage the upper groove of said casing in a sliding manner; numerous expansion spacing links pivotally attached to each other and provided with reading gauge pins, adapted to engage the communicating grooves within said casing; a graduated measuring scale reading upward on the surface of said casing, and a graduated measuring scale reading downward on the surface and edge of the story-pole rule, and means for adjusting and clamping the said story-pole rule and the spacing link devices within said casing, as shown and for the purposes set forth.

In testimony whereof I affix my signature.

CLAUDE S. TETRICK.